

Surface-Mount Standard Rectifiers

eSMP® Series



Top view

Bottom view

SMF (DO-219AB)

Cathode  Anode

DESIGN SUPPORT TOOLS

[click logo to get started](#)
3D
Models
Available

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2.0 A
V_{RRM}	200 V, 400 V, 600 V
I_{FSM}	35 A
V_F at $I_F = 2.0$ A ($T_A = 125$ °C)	0.85 V
I_R	5 μ A
T_J max.	175 °C
Package	SMF (DO-219AB)
Circuit configuration	Single

FEATURES

- Low profile package
- Ideal for automated placement
- Oxide planar chip junction
- Low forward voltage drop, low leakage current
- ESD capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Wave and reflow solderable
- AEC-Q101 qualified available
- Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE
GRADE
Available

RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

General purpose, power line polarity protection, in commercial, industrial, and automotive applications.

MECHANICAL DATA

Case: SMF (DO-219AB)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - for, halogen-free, and RoHS-compliant

Base P/NHM3 - for halogen-free, RoHS-compliant, and AEC-Q101 qualified

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes the cathode end

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	SE20FD	SE20FG	SE20FJ	UNIT
Device marking code		CD	CG	CJ	
Maximum repetitive peak reverse voltage	V _{RRM}	200	400	600	V
Maximum DC forward current	I _{F(AV)} ⁽¹⁾	2.0			A
	I _{F(AV)} ⁽²⁾	1.7			
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	35			A
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +175			°C

Notes

(1) Mounted on 10 mm x 10 mm pad areas, 2 oz. FR4 PCB

(2) Free air, mounted on recommended copper pad area



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 2.0 A	T _A = 25 °C	V _F ⁽¹⁾	0.96	1.10	V
		T _A = 125 °C		0.85	1.00	
Reverse current	Rated V _R	T _A = 25 °C	I _R ⁽²⁾	-	5	μA
		T _A = 125 °C		7.6	100	
Typical reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	920	-	ns
Typical junction capacitance	4.0 V, 1 MHz		C _J	13	-	pF

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: Pulse width $\leq 40\text{ ms}$

THERMAL CHARACTERISTICS (T _A = 25 °c unless otherwise noted)					
PARAMETER	SYMBOL	SE20FD	SE20FG	SE20FJ	UNIT
Typical thermal resistance	R _{θJA} ⁽¹⁾	130			°C/W
	R _{θJM} ⁽¹⁾	20			

Note(1) Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient; $R_{\theta JM}$ - junction to mount

IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)					
STANDARD	TEST TYPE	TEST CONDITIONS	SYMBOL	CLASS	VALUE
AEC-Q101-001	Human body model (contact mode)	$C = 100\text{ pF}$, $R = 1.5\text{ k}\Omega$	V_C	H3B	$> 8\text{ kV}$

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SE20FJ-M3/H	0.015	H	3000	7" diameter plastic tape and reel
SE20FJ-M3/I	0.015	I	10 000	13" diameter plastic tape and reel
SE20FJHM3/H ⁽¹⁾	0.015	H	3000	7" diameter plastic tape and reel
SE20FJHM3/I ⁽¹⁾	0.015	I	10 000	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)

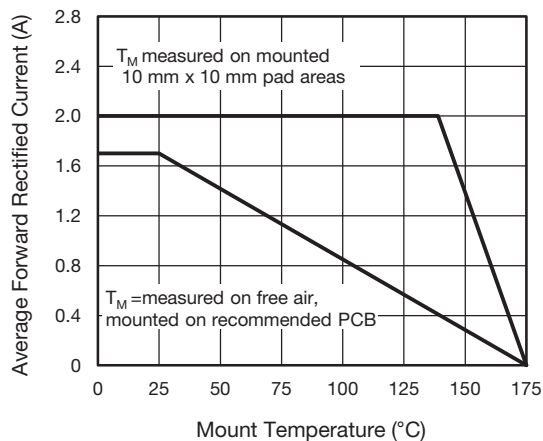


Fig. 1 - Maximum Forward Current Derating Curve

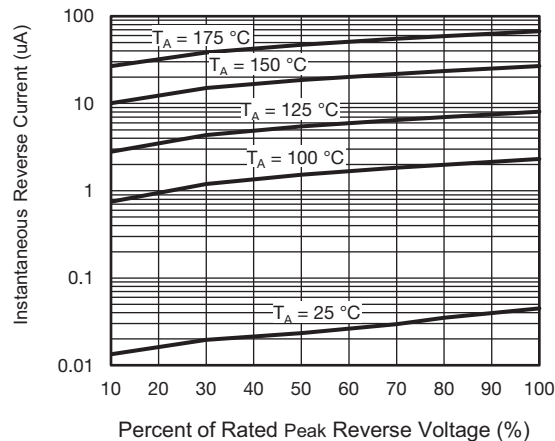


Fig. 4 - Typical Reverse Leakage Characteristics

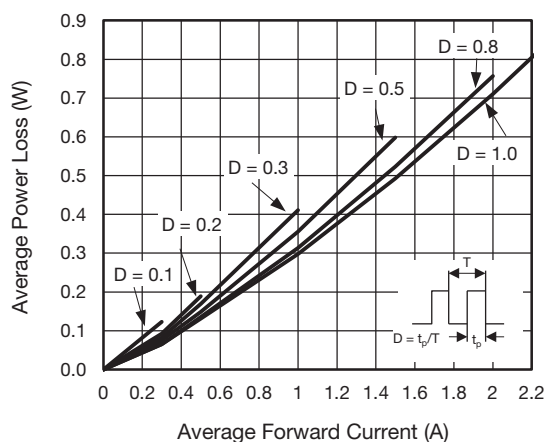


Fig. 2 - Average Power Loss Characteristics

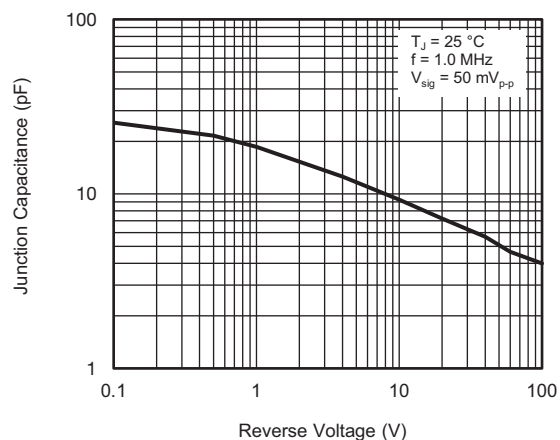


Fig. 5 - Typical Junction Capacitance

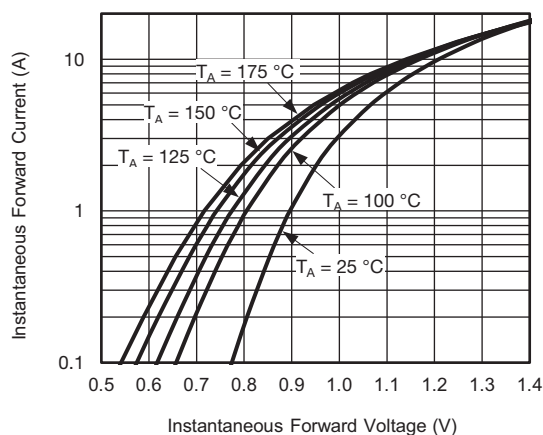


Fig. 3 - Typical Instantaneous Forward Characteristics

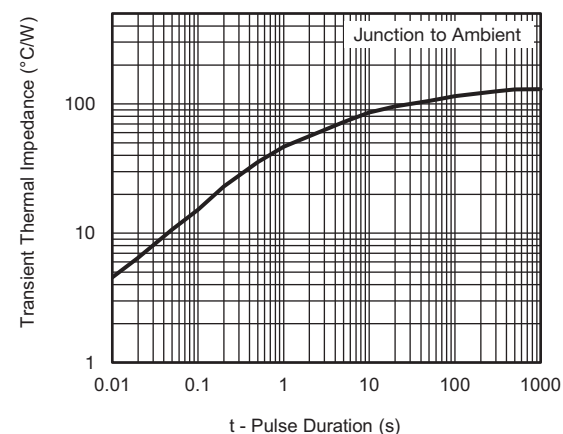
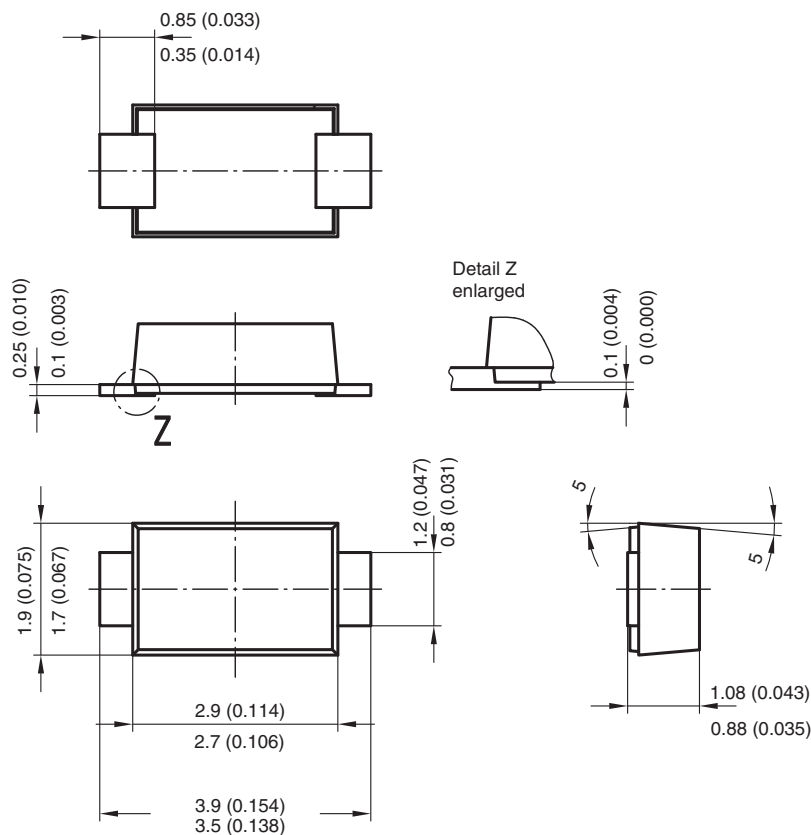


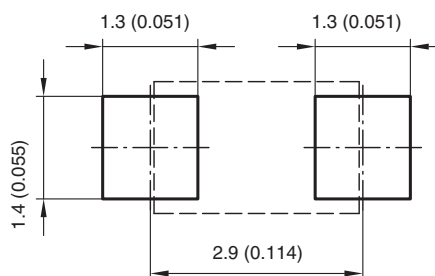
Fig. 6 - Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS in millimeters (inches)



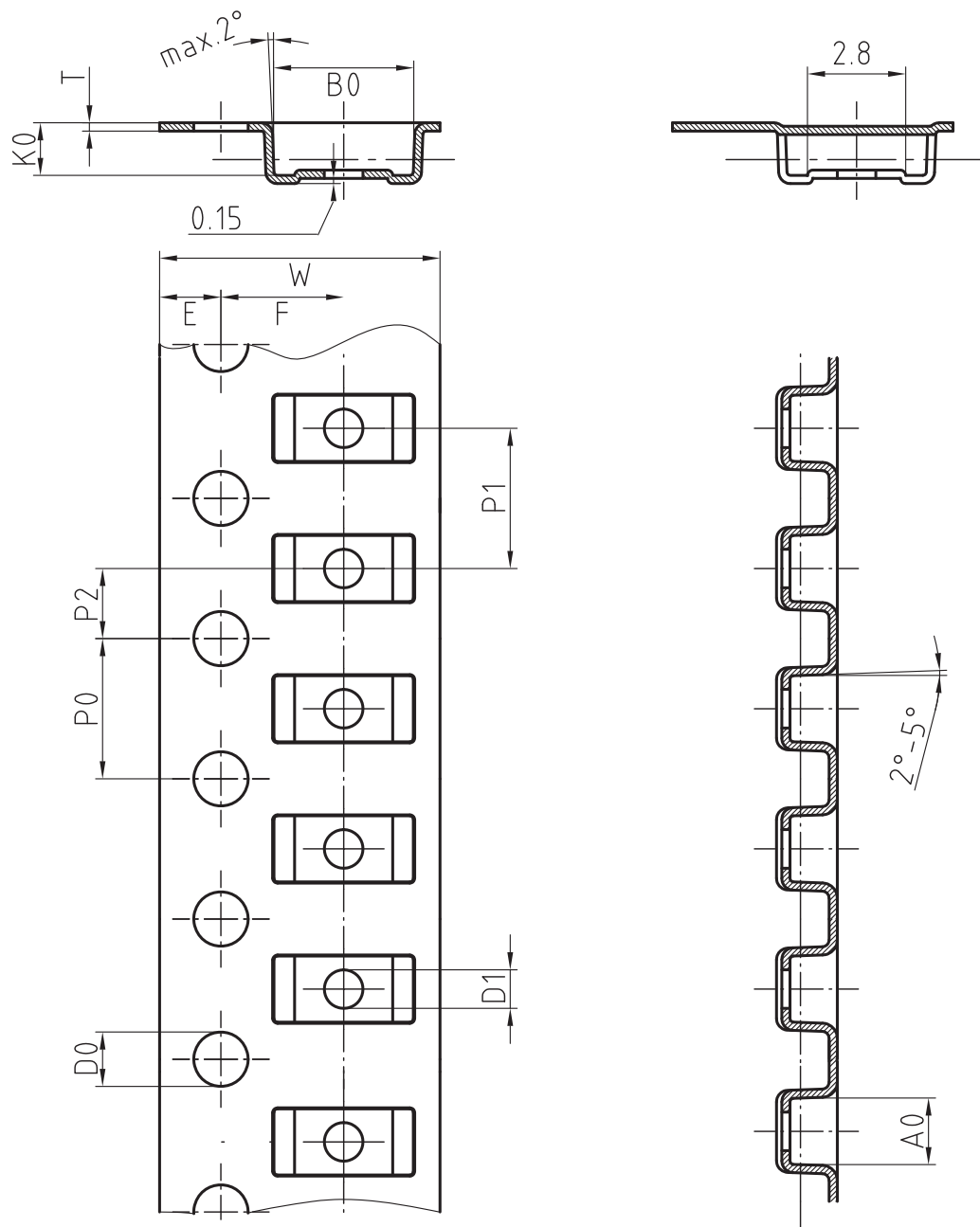
Foot print recommendation:



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17247



BLISTERTAPE DIMENSIONS in millimeters: **SMF (DO-219AB)**



Mat:	A0	B0	K0	W	T	P0	P2	P1	D0	D1	E	F
PS	1.9	4.0	1.5	8.0	0.235	4.0	2.0	4.0	1.5	1	1.75	3.5

Document-No.: S8-V-3717.02-001 (3)

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